

L Number	Hits	Search Text	DB	Time stamp
1	12	((two adj (part or step)) same (neutrali\$8)) and 510/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:09
3	46	((two adj (part or step)) same (alkaline or acidic)) and 510/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:11
2	36	((two adj (part or step)) same (alkaline or acididic)) and 510/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:16
4	3066	(acid or acidic) near5 (rinse)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:17
5	111	((acid or acidic) near5 (rinse)) and (carpet or textile or buffing or rubbing or fabric) and (tartaric or tannic or glycolic or citric or succinic)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:40
6	19	((acid or acidic) near5 (rinse)) and (carpet or textile or buffing or rubbing or fabric) and (tartaric or tannic or glycolic or citric or succinic)) and (alkaline near10 wash)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:26
7	2	("4,599,116").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:23
8	435	(alkaline same acidic same (wash or clean or cleaning or rinse)) and (((two or second) near3 (step or part)) or (acidic adj (rinse or wash)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:29
9	76	((alkaline same acidic same (wash or clean or cleaning or rinse)) and (((two or second) near3 (step or part)) or (acidic adj (rinse or wash)))) and (carpet or textile or buffing or rubbing or fabric) and (tartaric or tannic or glycolic or citric or succinic)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:33
10	473	(alkaline near3 (wash or clean or cleaning)) and ((acidic or acid) near3 (wash or rinse))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:36
11	160	((alkaline near3 (wash or clean or cleaning)) and ((acidic or acid) near3 (wash or rinse))) and (tartaric or tannic or glycolic or citric or succinic)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 10:13
12	10003	benzalkonium	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 10:13

13	351	benzalkonium and 510/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 10:14
14	13	(benzalkonium and 510/\$.ccls.) and carpet	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 12:18
15	189	((alkaline near3 (wash or clean or cleaning)) and ((acidic or acid) near3 (wash or rinse))) and ((heated or heat or temperature) same (rinse or acidic))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 13:06
16	32	((((alkaline near3 (wash or clean or cleaning)) and ((acidic or acid) near3 (wash or rinse))) and ((heated or heat or temperature) same (rinse or acidic))) and 510/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 13:07
-	4	mullane.in. and cleaning.ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 14:22
-	28	carpet.ti,ab,clm. and alkaline and neutraliz\$5 and 510/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 14:25
-	4	carpet.ti,ab,clm. and (two adj part) and 510/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 15:52
-	50	((("6034046") or ("6255269") or ("6268330") or ("6376718") or ("6387871") or ("6262003") or ("6489285") or ("5462690") or ("6583101") or ("6288019") or ("6368581") or ("6384010") or ("6362155") or ("5814591") or ("5750482") or ("6326344") or ("5948742") or ("6399555") or ("5665689") or ("6270754") or ("6277805") or ("4414128") or ("6361787") or ("5108643") or ("6503875") or ("5905065") or ("5468423") or ("6177395") or ("6489275") or ("6454876") or ("6372842") or ("5252245") or ("5437807") or ("6471983") or ("4690779") or ("6578960") or ("5207932") or ("6331518") or ("5259848") or ("5955413") or ("6540791") or ("6559243") or ("5252243") or ("6593287") or ("6593074") or ("6455459") or ("6372918") or ("6579617") or ("6414158") or ("6509400")).PN.	USPAT	2003/07/16 15:54
-	15	((("6034046") or ("6255269") or ("6268330") or ("6376718") or ("6387871") or ("6262003") or ("6489285") or ("5462690") or ("6583101") or ("6288019") or ("6368581") or ("6384010") or ("6362155") or ("5814591") or ("5750482")).PN.	USPAT	2003/07/16 16:03
-	7	((("6034046") or ("6255269") or ("6268330") or ("6376718") or ("6387871") or ("6262003") or ("6489285") or ("5462690") or ("6583101") or ("6288019") or ("6368581") or ("6384010") or ("6362155") or ("5814591") or ("5750482") or ("6326344") or ("5948742") or ("6399555") or ("5665689") or ("6270754") or ("6277805") or ("4414128") or ("6361787") or ("5108643") or ("6503875") or ("5905065") or ("5468423") or ("6177395") or ("6489275") or ("6454876") or ("6372842") or ("5252245") or ("5437807") or ("6471983") or ("4690779") or ("6578960") or ("5207932") or ("6331518") or ("5259848") or ("5955413") or ("6540791") or ("6559243") or ("5252243") or ("6593287") or ("6593074") or ("6455459") or ("6372918") or ("6579617") or ("6414158") or ("6509400")).PN.) and carpet	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 15:55

-	6	((("5252243") or ("5259848") or ("5905065") or ("5955413") or ("6177395") or ("6326344")).PN.	USPAT	2003/07/16 16:11
-	0	((("5252243") or ("5259848") or ("5905065") or ("5955413") or ("6177395") or ("6326344")).PN.) and (pyrophosphoric or phosphoric or polyphosphoric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 16:11
-	22	((("6034046") or ("6255269") or ("6268330") or ("6376718") or ("6387871") or ("6262003") or ("6489285") or ("5462690") or ("6583101") or ("6288019") or ("6368581") or ("6384010") or ("6362155") or ("5814591") or ("5750482") or ("6326344") or ("5948742") or ("6399555") or ("5665689") or ("6270754") or ("6277805") or ("4414128") or ("6361787") or ("5108643") or ("6503875") or ("5905065") or ("5468423") or ("6177395") or ("6489275") or ("6454876") or ("6372842") or ("5252245") or ("5437807") or ("6471983") or ("4690779") or ("6578960") or ("5207932") or ("6331518") or ("5259848") or ("5955413") or ("6540791") or ("6559243") or ("5252243") or ("6593287") or ("6593074") or ("6455459") or ("6372918") or ("6579617") or ("6414158") or ("6509400")).PN.) and (pyrophosphoric or phosphoric or polyphosphoric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 16:12
-	7	((("6034046") or ("6255269") or ("6268330") or ("6376718") or ("6387871") or ("6262003") or ("6489285") or ("5462690") or ("6583101") or ("6288019") or ("6368581") or ("6384010") or ("6362155") or ("5814591") or ("5750482")).PN.) and (pyrophosphoric or phosphoric or polyphosphoric)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 16:13
-	28	carpet and (pyrophosphoric or phosphoric or polyphosphoric) and 510/2\$2.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 16:14
-	4	carpet and (pyrophosphoric or polyphosphoric) and 510/2\$2.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 16:20
-	5	(((((("5252243") or ("5259848") or ("5905065") or ("5955413") or ("6177395") or ("6326344")).PN.) or (carpet and (pyrophosphoric or polyphosphoric) and 510/2\$2.ccls.)) and hydrocarbon	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/16 16:21
-	10	((("5252243") or ("5259848") or ("5905065") or ("5955413") or ("6177395") or ("6326344")).PN.) or (carpet and (pyrophosphoric or polyphosphoric) and 510/2\$2.ccls.)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/07/17 09:07

-----claim tree-----

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claim# 3 contains the word -> such as  
claim# 5 contains the word -> such as  
claim# 6 contains the word -> such as  
claim# 7 contains the word -> prefer  
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claim# 8 contains the word -> such as  
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claim# 13 contains the word -> prefer  
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claim# 14 contains the word -> such as  
claim# 15 contains the word -> such as  
claim# 16 contains the word -> such as  
claim# 19 contains the word -> such as  
claim# 23 contains the word -> prefer  
claim# 23 contains the word -> such as  
claim# 23 contains the word -> for example  
claim# 23 contains the word -> similar  
claim# 23 contains the word -> substantially  
claim# 23 contains the word -> type  
claim# 23 contains the word -> as described  
claim# 23 contains the word -> significant  
claim# 23 contains the word -> significantly  
claim# 23 contains the word -> substantial  
claim# 23 contains the word -> at least about  
claim# 23 contains the word -> less than about  
claim# 23 contains the word -> especially

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-----classlist-----

510/506  
510/365  
510/417  
510/422  
510/505  
510/238  
510/424  
510/508  
510/237  
510/280  
510/503  
510/434  
510/427  
510/423  
510/488  
510/321  
510/108  
510/413  
430/329  
510/470  
510/284  
510/405  
510/421  
510/437  
510/477  
510/476  
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134/40  
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510/428  
424/486  
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510/289  
524/547  
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510/435  
510/362  
510/242  
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424/7808  
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516/66  
510/432  
510/430  
510/279  
510/480  
510/182  
510/463  
510/426  
424/761

-----keywords-----

complexing nta optical ratio. upholstery ph neutralizing alkaline carpets carpet cleaning septic preservative dye ammonium chloride benzalkonium chloride quaternary surfactant nonionic surfactant synperonic ethoxy nonionic exxol fatty acid methyl ester cycloaliphatic petroleum aliphatic hydrocarbon greases organic solvent glycol ethers monobutyl glycol ether phosphoric polyphosphoric pyrophosphoric carpet two part composition hydrocarbon glycol ether Tetrapotassium pyrophosphate immersed removing stainless steel steel in ert suggested saturated absorbent layer immersion cleaning carpet believed raised ambient completion pads discovered surprisingly aqueous dispersion acid solution glycolic acid glycolic propionic acid propionic tartaric acid tartaric succinic acid succinic acetic acid acetic citric acid citric metal salts weak inorganic mild slightly meant neutral orange terpenes terpenes optional ingredients adding diluted solution diluted percentage liquid concentrate viscosity formulations cleaners perfumes cleaning formulation preferable primary ammonium salts biocides minimum formulation ethoxylated alcohol ethoxylated amphoteric anionic foam emulsions ranges methyl ester acid methyl dibasic ester isopropanol non-toxic kerosene aliphatic hydrocarbons absence immiscible organic liquid solvent component ethanol isopropyl alcohol isopropyl alkanol aliphatic alcohol aliphatic N-butyl ether glycol N-butyl N-butyl monomethyl ether glycol monomethyl monomethyl dipropylene glycol dipropylene propylene glycol propylene ethylene glycol alkali EDTA ethylene diamine carboxylic acids carboxylic diamine aminopolycarboxylic acids organic compounds water-soluble inorganic inorganic halogenated solvents surfactants ingredient dissolving dispersion miscible detergent builder builder alkaline detergent metal ions weak stated expressed weights problems promote repeated soil optical brighteners brighteners deposits fabrics dyes alkaline conditions undesirable Residues cleaning agents conventionally grease water-insoluble dirt water-soluble Detergents soils plus extraction detergent involves substrates extent shrink fabric tends So-called cleaned appearance release eventually Soiled atmosphere gases particulates cleaning apparatus improved cleaning emulsion admixture preparing preparation

-----references-----

----- 6034046  
classes:1 510/362 1 510/235 1 510/237 1 510/238 1 510/361 1 510/398 1 510/432 1 510/490  
score: 787

keywords: ph;alkaline;quaternary;surfactant;nonionic surfactant;nonionic;glycol ethers;monobutyl;glycol;ether;phosphoric;composition;hydrocarbon;glycol ether;diluted;viscosity;formulations;primary;ethoxylated;anionic;absence;isopropyl;aliphatic;glycol N-butyl;N-butyl;glycol monomethyl;monomethyl;dipropylene glycol;dipropylene;propylene glycol;propylene;ethylene glycol;alkali;carboxylic;water-soluble inorganic;inorganic;dispersion;builder;soil;deposits;dyes;undesirable;Residues;grease;water-soluble;Detergents;detergent;involves;So-called;cleaned;release;Soiled;improved cleaning;acidic;silicates;ingredients;ethers;alkyl;dissolve;alkylene;phosphonates;perfume;balance;minor;

- col monomethyl ether, propylene glycol monomethyl ether,

report09936974.txt

ethylene glycol monoethyl ether, diethylene glycol monoethyl ether, propylene glycol tertiary butyl ether, ethylene glycol monoethyl ether, ethylene glycol monomethyl ether, ethylene glycol monopropyl ether, ethylene glycol monopentyl ether, diethylene glycol monomethyl ether, diethylene glycol monoethyl ether, diethylene glycol monopropyl ether, diethylene glycol monopentyl ether, triethylene glycol monomethyl ether, triethylene glycol monoethyl ether, triethylene glycol monopropyl ether, triethylene glycol monopentyl ether, triethylene glycol monoethyl ether, mono, di, tripropylene glycol monoethyl ether, mono, di, tripropylene glycol monopropyl ether, mono, di, tripropylene glycol monopentyl ether, mono, di, tripropylene glycol monoethyl ether, mono, di, tributylene glycol monoethyl ether, mono, di, tributylene glycol

- 0 to 40 mPas.

The compositions are directly ready for use or can be \*\*diluted\*\* as desired and in either case no or only minimal rinsing is required and substantially no residue or streaks are left behind. Furthermore, because the compositions are free of detergent builders such as alkali metal polyphosphates they are environmentally acceptable and provide a better "shine" on cleaned hard surfaces.

When intended for use in the neat form, the liquid compositions can be packaged under pressure in an aerosol container or in a pump-type sprayer for the so-called spray-and-wipe type of application.

Because the compositions as prepared are aqueous liquid \*\*formulation\*\*s and since no particular mixing is required to form the compositions which are easily prepared simply by combining all the ingredients in a suitable vessel or container. The order of mixing the ingredients is not particularly important and generally the various ingredients can be

- -butyl ether

	2.0	
		2.0
Isopropyl alcohol		4.4
Ammonium EDTA		0.66
MGDA		2.0
Glutamic acid-N,N-Diacetate	2.0	
sodium salt		
Norasol 460ND		
	2.0	
IDS Na	2.0	
Perfume		0.3
Water		
Soap scum inhibition test.sup.1		
0.45 ml		
0.45 ml		
0.15 ml		
0.60 ml		
	1.00	
Film homogeneity		
	better	better
	best	
		better
		standard
Film transparency (1 day)		
	**slightly**tly	
	best	

----- 6255269

classes:1 510/238 1 510/417 1 510/422 1 510/434 1 510/477 1 510/505 1 510/506 1 510/508  
score: 769

keywords: ph;neutralizing;alkaline;chloride;surfactant;nonionic surfactant;nonionic;glycol ethers;monobutyl;glycol;ether;phosphoric;composition;hydrocarbon;glycol ether;removing;saturated;glycolic;tartaric;citric acid;citric;neutral;terpenes;diluted;viscosity;perfumes;primary;ammonium salts;ethoxylated;amphoteric;anionic;ranges;absence;aliphatic alcohol;aliphatic;monomethyl ether;glycol monomethyl;monomethyl;dipropylene glycol;dipropylene;propylene glycol;propylene;ethylene glycol;alkali;ethylene diamine;carboxylic;diamine;inorganic;surfactants;ingredient;dispersion;soil;fabrics;dyes;grease;water-soluble;Detergents;detergent;appearance;improved cleaning;emulsion;acidic;silicates;ingredients;alcohols;ethers;fatty acid;fatty;alkyl;aromatic;alkylene;phosphonates;perfume;balance;minor;

- ionic surfactant;
- (c) 0 to 8% of a water insoluble organic ester or a water insoluble material selected from the group consisting of \*\*terpenes\*\* and essential oils;
- (d) 0 to 5% of a polyethylene glycol;
- (e) 0.1% to 5% of a hydroxy aliphatic acid selected from the group consisting of \*\*glycolic acid\*\*, salicylic acid, \*\*tartaric acid\*\*, \*\*citric acid\*\* and lactic acid and mixtures thereof;
- (f) 0 to 10% of a solubilizer;
- (g) 0 to 5% of an inorganic magnesium salt;
- (h) 0 to 2% of a thickener; and
- (i) the balance being water, wherein the composition does not contain a C.sub.8 -C.sub.18 alkyl or alkenyl monobase or dibasic acid which does not contain a hydroxy group, phosphoric acid or an amino alkylene phosphonic acid.
- 9. The composition of claim 8, wherein said solubilizing agent is selected from the group consisting of sodium, potassium, \*\*ammonium salts\*\* of cumene, xylene and toluene sulfonate and mixtures thereof.
- 10. The composition of claim 8, wherein said s

----- 6268330  
 classes:1 510/417 1 510/235 1 510/429 1 510/432 1 510/434 1 510/506  
 score: 768

keywords: ph;neutralizing;alkaline;chloride;surfactant;nonionic surfactant;nonionic;glycol ethers;monobutyl;glycol;ether;phosphoric;composition;hydrocarbon;glycol ether;removing;saturated;glycolic;tartaric;citric acid;citric;neutral;terpenes;diluted;viscosity;perfumes;primary;ammonium salts;ethoxylated;amphoteric;anionic;ranges;absence;aliphatic alcohol;aliphatic;monomethyl ether;glycol monomethyl;monomethyl;dipropylene glycol;dipropylene;propylene glycol;propylene;ethylene glycol;alkali;ethylene diamine;carboxylic;diamine;inorganic;surfactants;ingredient;dispersion;soil;fabrics;dyes;grease;water-soluble;Detergents;detergent;appearance;improved cleaning;emulsion;acidic;silicates;ingredients;alcohols;ethers;fatty acid;fatty;alkyl;aromatic;alkylene;phosphonates;perfume;balance;minor;

- 4364Mar., 1994Thomas et al.252/142.  
 5531938Jul., 1996Erilli510/417.  
 5554320Sep., 1996Yianakopoulos252/389.  
 5741769Apr., 1998Erilli510/417.  
 \*\*primary\*\* Examiner:Ogden; Necholas  
 Attorney, Agent or Firm:Nanfled; Richard E.

Parent Case Text  
 RELATED APPLICATION

This application is a continuation in part application of U.S. Ser. No. 9/316,793 filed May 21, 1999, now abandoned.

#### Claims

What is claimed:

1. A clear microemulsion light duty liquid cleaning composition which comprises approximately by weight:
  - (a) 18% to 32% of a mixture of an alkali metal salt of an anionic sulfonate surfactant and an alkali metal salt of a C.sub.8 -C.sub.18 \*\*ethoxylated\*\* alkyl ether sulfate and/or a C.sub.8 -C.sub.18 alkyl ether sulfate, wherein the weight ratio of the sulfonate surfactant to the sulfate surfactant is from 15:1 to 2:1;
  - (b) 1% to 10% of an \*\*ethoxylated\*\* nonionic surfactant;
  - (c) 0.1 to 5% of a polyethylene glycol;
  - (d) 0.1% to 5% of a hydroxy aliphatic acid selected from the group consisting of \*\*glycolic acid\*\*, salicylic acid, \*\*tartaric acid\*\*, \*\*citric acid\*\* and lactic acid and mixtures thereof;
  - (e) 1.2 to 10% of at least one solubilizing agent selected from the group consisting of sodium, potassium, \*\*ammonium salts\*\* of cumene, xylene, and toluene sulfonates and mixtures thereof;
  - (f) 0.5% to 14% of a cosurfactant;
  - (g) 0.5 to 5% of an inorganic magnesium salt;
  - (h) 0.5% to 8% of water insoluble organic ester or a water insoluble material selected from the group consisting of \*\*terpenes\*\* and essential oils;
  - (i) 0.05 to 2% of a thickener and
  - (j) the balance being water, wherein the composition does not contain a C.sub.8 -C.sub.18 alkyl or alkenyl monobase or dibasic acid which does not contain a hydroxy group, phosphoric acid or an amino alkylene phosphonic acid.



2. The composition of claim 1, wherein said solubilizing agent is sodium cumene sulfonate.
3. The composition of claim 1, wherein said hydroxy aliphatic ampoo contains a minor amount of a fatty acid alkanolamide. U.S. Pat. No. 3,769,398 discloses a betaine-based shampoo containing minor amounts of nonionic surfactants. This patent states that the low foaming properties of nonionic detergents renders its use in shampoo compositions non-preferred. U.S. Pat. No. 4,329,335 also discloses a shampoo containing a betaine surfactant as the major ingredient and minor amounts of a nonionic surfactant and of a fatty acid mono- or di-ethanolamide. U.S. Pat. No. 4,259,204 discloses a shampoo comprising 0.8-20% by weight of an anionic phosphoric acid ester and one additional surfactant which may be either anionic, **\*\*amphoteric\*\***, or nonionic. U.S. Pat. No. 4,329,334 discloses an anionic-amphoteric based shampoo containing a major amount of anionic surfactant and lesser amounts of a betaine and nonionic surfactants.
- U.S. Pat. No. 3,935,129 discloses a liquid cleaning composition based on the alk alcohol, and an **\*\*amphoteric\*\*** surfactant which may be a betaine, wherein either the anionic or nonionic surfactant may be the major ingredient.

#### SUMMARY OF THE INVENTION

It has now been found that an acid light duty liquid detergent can be formulated with an anionic surfactant which has desirable cleaning properties and mildness to the human skin.

- An object of this invention is to provide an acidic light duty liquid detergent composition which can be in the form of a microemulsion, and comprises a sulfate and/or sulfonate anionic surfactant and a hydroxy aliphatic acid, wherein the instant compositions do not contain an amine oxide surfactant, a betaine surfactant, an alkyl polyglucoside surfactant, an N-alkyl aldonamide, choline chloride or buffering system which is a nitrogerious buffer which is ammonium or alkaline earth carbonate, guanidine derivates, alkoxylalkyl amines and alkyleneamines C.sub.3
- C.sub.7 alkyl and alkenyl m
  - onobasic and dibasic acids such as C.sub.4
  - C.sub.7 aliphatic carboxylic diacids which do not contain a hydroxy group, phosphoric acid, amino alkylene phosphonic acid and the composition is pourable and is not a gel and the composition has a complex **\*\*visCOsity\*\*** at 1 rads-1 of less than 0.4 Pascal seconds.

Another object of this invention is to provide an acidic light duty liquid detergent with desirable high foaming and cleaning properties which kills bacteria.

Additional objects, advantages and novel features of the invention will be set forth in part in the description which follows, and in part will become apparent to those skilled in the art upon examination of the following or may be learned by practice of the invention. The objects and advantages of the invention may be realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

#### DETAILED DESCRIPTION OF THE INVEN

----- 6376718  
 classes:1 568/405 1 568/383 1 568/449 1 568/485 1 568/486  
 score: 763

keywords: glycol ethers;glycol;ether;glycol ether;stainless steel;steel;primary;glycol N-butyl;N-butyl;di propylene glycol;dipropylene;propylene glycol;propylene;ethylene glycol;repeated;dyes;preparation;heated; alcohols;ethers;alkyl;alkylene glycol;alkylene;

- 1 to C.sub.6 alkyl group. Preferably, R.sub.2 is hydrogen or a C.sub.1 to C.sub.10 alkyl group. More preferably, R.sub.2 is hydrogen or methyl group.

Examples of suitable alkylene glycol ethers are propylene glycol methyl ether, propylene glycol n-butyl ether, propylene glycol t-butyl ether, propylene glycol n-propyl ether, dipropylene glycol methyl ether, dipropylene glycol n-butyl ether, dipropylene glycol t-butyl ether, dipropylene glycol n-propyl ether, tripropylene glycol methyl ether, ethylene glycol methyl ether, ethylene glycol n-butyl ether, diethylene glycol methyl ether, diethylene glycol n-propyl ether, and the like, and mixtures thereof.

The dehydrogenation converts **\*\*primary\*\*** hydroxyl group of alkylene glycol ether to aldehyde and secondary hydroxyl group to ketone. For example, dehydrogenation of propylene glycol methyl ether gives methoxyacetone,

while the dehydrogenation of ethylene glycol methyl ether gives

- wt % water and 60 wt % of propylene glycol methyl ether is fed into the reactor at a weight-hourly space-velocity (WHSV) of 1.1. Reactor temperature is maintained at 250.degree. C. In the steady state, the conversion of propylene glycol methyl ether is 43.5% and selectivity to methoxyacetone is 95.2 mole %.

## EXAMPLE 2

Example 1 is repeated, but a mixture of 20 wt % water and 80 wt % propylene glycol methyl ether is used. In the steady state, the conversion of propylene glycol methyl ether is 37.5% and selectivity to methoxyacetone is 85.4 mole %.

## EXAMPLE 3

Example 1 is repeated, but a mixture of 10 wt % water and 90 wt % propylene glycol methyl ether is used. In the steady state, the conversion of propylene glycol methyl ether is 34% and selectivity to methoxyacetone is 75.2 mole %.

## EXAMPLE 4

Example 1 is repeated but a mixture of 5 wt % water and 95 wt % propylene glycol methyl ether is used. In the steady state, the conversion of

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classes:1 510/470 1 510/235 1 510/237 1 510/238 1 510/243 1 510/362 1 510/405 1 510/426 1 510/463 1 510/480 1 510/503  
score: 755

keywords: ph;alkaline;ammonium chloride;chloride;quaternary;surfactant;nonionic surfactant;nonionic;glycol ethers;monobutyl;glycol;ether;composition;hydrocarbon;glycol ether;removing;saturated;metal salts;meant;diluted;percentage;formulations;cleaners;primary;ammonium salts;ethoxylated alcohol;ethoxylated;amphoteric;anionic;isopropyl;alkanol;aliphatic;N-butyl ether;glycol N-butyl;N-butyl;dipropylene glycol;dipropylene;propylene glycol;propylene;ethylene glycol;alkali;EDTA;ethylene diamine;diamine;organic compounds;surfactants;ingredient;miscible;buidler;expressed;soil;dyes;Residues;grease;dirt;water-soluble;soils;detergent;cleaned;Soiled;dilution;ammonia;alcohols;ethers;fatty acid;fatty;alkyl;alkylene glycol;alkylene;solvents;minor;

- nology 3d. Vol. 22, p. 378 (1983).

The foregoing passage thus reflects the widely held view that cationic surfactants, such as quaternary ammonium surfactants, are strongly contraindicated for use in certain hard surface \*\*cleaners\*\* because their presence will naturally tend to leave residues on hard surfaces thus cleaned. And, it has been observed that streaking/filming performance, as can be expected, is poor when such quaternary ammonium surfactants are formulated into no-rinse hard surface \*\*cleaners\*\*. \*\*surprisingly\*\*, however, the unique \*\*formulation\*\*s of the invention have superior streaking/filming performance compared to other quaternary ammonium surfactant containing \*\*formulation\*\*s.

The choice of the quaternary ammonium surfactant depends on its physical compatibility as well as its biocidal activity against targeted organisms. In other words, simply because the quaternary ammonium surfactant has physical compatibility does n